

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CARSTEN ROHR, KEITH W.J. BARNHAM,
NICHOLAS EKINS-DAUKES, JAMES P. CONNOLLY,
IAN M. BALLARD, and MASSIMO MAZZER

Appeal 2006-2150
Application 09/955,297
Technology Center 1700

Decided: December 8, 2006

Before GARRIS, WARREN, and JEFFREY T. SMITH, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1-18, 20-27, 31-33, and 35-58.

The subject matter on appeal relates to a photovoltaic device comprising a plurality of quantum wells and barriers having tensile strained layers and compressively strained layers wherein these layers have

compositions such that a period of one tensile strained layer and one compressively strained layer exerts substantially no shear force on a neighbouring structure. This appealed subject matter is adequately represented by independent claim 1 which reads as follows:

1. A photovoltaic device comprising:

a plurality of quantum wells and

a plurality of barriers, said barriers alternating with said quantum wells, one of said plurality of quantum wells and said plurality of barriers comprised of tensile strained layers and the other of said plurality of quantum wells and said plurality of barriers comprised of compressively strained layers, said tensile strained layers and said compressively strained layers having compositions such that a period of one tensile strained layer and one compressively strained layer exerts substantially no shear force on a neighbouring structure.

The references set forth below are relied upon by the Examiner in the § 102 and § 103 rejections before us:

Freundlich	US 5,851,310	Dec. 22, 1998
Freundlich	US 6,150,604	Nov. 21, 2000

Ekins-Daukes et al., *Strain-balanced GaAsP/InGaAs quantum well solar cells*, 75 Applied Physics Letters no. 26, 4195-97 (1999)

Claims 1-6, 12, 13, 42, and 43 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ekins-Daukes.

Under 35 U.S.C. § 103(a):

Claims 7-11, 14, and 15 are rejected as being obvious over Ekins-Daukes in view of Freundlich '310;

Claims 16 and 17 are rejected over Ekins-Daukes in view of Freundlich '604;

Claims 18 and 20-27 are rejected over Freundlich '310 in view of Ekins-Daukes, and claims 31-33 and 35-41 are correspondingly rejected over these references and further in view of Freundlich '604;

Claims 44-47, 53, and 54 are rejected over Ekins-Daukes;

Claims 48-52, 55, and 56 are rejected over Ekins-Daukes in view of Freundlich '310; and

Claims 57 and 58 are rejected over Ekins-Daukes in view of Freundlich '604.

On page 5 of the Brief, the Appellants state that "[t]he rejected claims stand or fall as being based upon the independent claims 1, 18, 33 and 44." Stated otherwise, no specific dependent claim has been separately argued by the Appellants on this appeal.

For a complete exposition of the opposing viewpoints expressed by the Appellants and the Examiner concerning these rejections, we refer to the Brief filed July 12, 2004, the Reply Brief filed November 22, 2004, the Supplemental Reply Brief filed October 7, 2005, and the Further Supplemental Reply Brief filed February 23, 2006 as well as the Examiner's Answer mailed September 21, 2004, the Supplemental Examiner's Answer mailed August 8, 2005, and the Supplemental Examiner's Answer mailed December 23, 2005.

OPINION

We fully agree with the findings of fact, conclusions of law, and rebuttals to argument expressed by the Examiner in his Answers.

Accordingly, we adopt these findings, conclusions, and rebuttals as our own. We add the following comments for emphasis.

It is the Examiner's basic position that, in the strain-balanced GaAsP/InGaAs quantum well solar cells of Ekins-Daukes, a period of one tensile strained layer and one compressively strained layer will necessarily and inherently exert "substantially no shear force on a neighbouring structure" (claim 1) as required by the appealed claims. The Appellants believe that the Examiner's position is without support and is contrary to the Rule 1.132 Declaration by Dr. Neal G. Anderson filed July 23, 2003.

This belief is without merit as fully explained by the Examiner, for example, in the Supplemental Examiner's Answer mailed December 23, 2005. As detailed therein, the Examiner's position is reasonably supported by fact and technical reasoning (*id.* at 5 and 6). *See Ex parte Levy*, 17 USPQ2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990). Indeed, the Examiner's position is reinforced, while the Appellants' contrary view is undermined, by the fact that the appealed claims define the "substantially no shear force" limitation as resulting from layer compositions which include those of Ekins-Daukes. For example, compare the compositions defined by appealed claims 12 and 13 with the compositions disclosed on page 4195 of the Ekins-Daukes reference.

Under the circumstances expressed above and in the Answers, the Examiner has established a *prima facie* case for his inherency position. *See In re Schreiber*, 128 F.3d 1473, 1478, 44 USPQ2d 1429, 1432 (Fed. Cir.

1997); *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977). Therefore, it is appropriate to require Appellants to prove that the solar cells disclosed by Ekins-Daukes do not necessarily or inherently possess the “substantially no shear force” characteristics of the here-claimed photovoltaic device. *Best*, 562 F.2d at 1255, 195 USPQ at 433. Whether the rejection is based on inherency under 35 U.S.C. § 102, on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the inability of the Patent and Trademark Office to manufacture products or to obtain and compare prior art products. *Id.*, 562 F.2d at 1255, 195 USPQ at 433-34.

Here, the Appellants have not carried their burden of proof. This is because, as correctly explained by the Examiner in the above-noted Supplemental Answer, both the Appellants in their Briefs and Dr. Anderson in his Rule 1.132 Declaration have failed to address the specific compositions disclosed by Ekins-Daukes. It follows that we hereby sustain each of the § 102 and § 103 rejections advanced by the Examiner on this appeal.¹

¹ In the event of further prosecution, particularly if the Appellants attempt to prove that the solar cells of Ekins-Daukes do not actually possess the here-claimed characteristic of exerting “substantially no shear force on a neighbouring structure,” the Examiner should consider whether the aforequoted recitation renders the claims in violation of the second paragraph requirements of 35 U.S.C. § 112. This is because, as correctly indicated by the Examiner in his Answers and not disputed by the Appellants, the subject Specification contains no definition or guidance as to the scope of shear

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The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. §1.136(a)(1)(iv) (2004).

AFFIRMED

clj

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force encompassed by the claim term “substantially.” *See Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826, 221 USPQ 568, 573-74 (Fed. Cir. 1984).